

**THE INFLUENCE OF DAYLIGHT ON NUMBER OF PATRONAGE TO  
SHOPPING COMPLEX**

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## **ABSTRACT**

The research explores the effects of daylight components in the interior of shopping complex on influencing the number of patronage. The research objective is to show that shopping complexes with more daylight attract more patronage. The research hypothesis is that commercial buildings with more daylight components will have more patronage or customers. The research began with a building framework that functions as the structure for the building selection. A building inventory was formed to assist in the building selection. Prior to the building framework, topics such as definition of shopping complex, basic benchmarking, factors affecting patronage and lighting was covered. Based on these research, Subang Parade and Summit USJ were chosen as case studies. Selected shopping complexes with similar characteristics and attributes that bear the controlled variables or factors that could affect people to come to shopping complexes other than light was selected and then compared with the one and only variable left which was light. This was based on the fact that light affects human behaviors. Data collected for this research were luminance level and patronage count. The research found that shopping complex with daylight components had higher patronage count compared to shopping complex with no daylight component. It is hoped that this research would contribute to the awareness on the value of daylight in buildings especially in shopping complexes in Malaysia.

## **ABSTRAK**

Kajian ini dibuat untuk mengkaji kaitan komponen cahaya siang di dalam gedung membeli-belah terhadap jumlah pengunjung yang mengunjungi bangunan tersebut. Objektif kajian adalah untuk menunjukkan bahawa gedung membeli-belah yang mempunyai komponen cahaya siang yang lebih besar di ruang dalamnya mampu menarik lebih ramai pengunjung. Hipotesis kajian ini adalah gedung membeli-belah yang mempunyai komponen cahaya siang yang lebih tinggi mampu menarik lebih ramai pengunjung. Kajian bermula dengan membuat satu rangka penyelidikan bangunan yang berfungsi sebagai struktur untuk pemilihan bangunan kajian. Inventori bangunan telah dibuat untuk membantu pemilihan bangunan kajian. Sebelum rangka penyelidikan bangunan dilakukan, beberapa topik penting telah dikaji seperti definasi gedung membeli-belah, asas tanda aras, kajian terhadap faktor yang mempengaruhi pengunjung ke gedung membeli-belah, dan faktor yang mempengaruhi pencahayaan. Berdasarkan penyelidikan yang telah dibuat, Subang Parade dan Summit USJ telah dipilih sebagai kajian kes. Kajian ini hanya memilih gedung membeli-belah yang memiliki ciri-ciri yang sama untuk dibandingkan. Perbezaan antara bangunan yang dipilih hanyalah sistem pencahayaan. Data yang akan diambil adalah kadar pencahayaan dan bilangan pengunjung. Penemuan kajian ini menunjukkan bahawa gedung membeli-belah yang memiliki komponen cahaya siang yang lebih tinggi mampu menarik lebih ramai pengunjung. Adalah diharapkan kajian ini dapat menyumbang kepada kesedaran terhadap nilai cahaya siang di dalam bangunan terutamanya gedung membeli belah di Malaysia.

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## **CHAPTER 1**

### **INTRODUCTION**

The Malaysian shopping scene, especially within the Klang Valley district has shown a rise in the development of shopping complexes due to the rise in consumer demand as in rise in shopping trend (Selat, 1995). The main dilemma of shopping complexes in Malaysia is seen in its declining life span serving as a commercial centre which in the end needs to be revitalized and revived as quoted by Zulkhafiz (2002) & Fauzan (2000). Shopping complexes tend to experience decreasing amount of customers as it age turning it into white elephants. The Johore shopping scenario for instance has witnessed several accounts of the failures of shopping complexes such as Bestworld Plaza, Kemayan City and the recently opened Lot 1 Shopping Centre. This stresses even more on the importance of looking into factors that contributes to attracting customers to shopping complexes. According to Tauber (1972) on different motives for shopping, he found out that people shopped not merely out of necessity or a desire to satisfy a physical need but even includes the need for social interaction outside of the home such as encounters with friends or salesperson. Tan (1991) studied on shopping behaviours in Singapore and the implications for property managers found that a friend's perception of the shopping centre could also contribute to retail patronage.

In finding the relation on factors that contributes to attracting customers to shopping complexes, the subject of human reaction, light, and commercial building



has been selected as the main subject of the research. It is widely known that human being react to light. Human being or within this context; the customers, is also closely related to the subject of commercial buildings such as shopping behavioural patterns and what triggers them. It is also known that light plays an important role in affecting human behavioural pattern and psychological response. According to Ruck (1989) on the subject of the construction of human perception, the quantity and the quality of light received by the human visual receptors, which is the eyes, have a direct influence on how people see things, which could contribute to one's impressions of an interior by giving character and atmosphere. Research done by Sudirman (2001) regarding human perception towards the usage of daylight in shopping complexes, shows that shopping complexes with higher degree of daylight usage evokes positive feelings/emotions in building users within its interiors compared to shopping complexes with less daylight usage. The research would like to look whether daylight affects the number of customers in a shopping complex.

## **1.0 Research background**

The rise of shopping complexes in Malaysia poses a threat to the environment. It is feared that without proper study on the effects of these developments towards the environment, a surplus of shopping complexes might arise and this will give a negative impact to the environment. This scenario would lead to numerous environmental issues such as a rise in energy demand as to operate buildings, rise in building material and even the urban heat island phenomena. Rise in energy demand occurs as these buildings operate. Common practice of mechanical ventilation and artificial lighting contributes to demand in energy. The rise will also increase the urban heat island phenomena as more shopping complexes are built. Furthermore, if the shopping complex cease to operate and left unused, the vacant building will still continue to contribute to the urban heat island effect.

## **1.1 Scope of research**

The research would look into the affects of daylight component in commercial building on number of customers. The research should reflect the shopping complex development scenario of Malaysia. Therefore, the research should include samples of shopping complexes throughout Malaysia.

However, the reseach has selected Klang Valley as the extent of research field. Klang Valley has been chosen as the research field because it has the largest amount of shopping complexes (Kamiso & And, 2004). The research will look into the basic dimensions, which determine retail patronage. The research will also look into different motives of shopping that explains why people go to shopping complexes to work out these variables. After verifying these variables, the researcher will select shopping complexes with the most similar characteristics and attributes that bear the controlled variables (factors that could affect people to come to shopping complexes other than light) to then compare the one and only variable left which is light.

## **1.2 Research hypothesis.**

Commercial buildings with more daylight components will have more patronage/customers. This ideology is based on the fact that light affects human behaviour.

### **1.3 Research aim and objectives.**

The main objective of the research is to demonstrate that commercial buildings with higher components of daylight in its interior attract more customers. The research is crucial especially to individuals that are connected to the commercial business such as property owners, property managers and shareholders to name a few.

The aim of the research is to promote awareness on proper check and balance between shopping complex development and the environment to avoid a surplus in shopping complexes. Usage of daylighting in shopping complexes could lessen and save energy consumption used to operate artificial lighting. A better understanding of the proper application of daylighting strategies in shopping complexes in Malaysia could benefit both developers and customers.

### **1.4 Research questions.**

In achieving the objective of the research, one must ask how to work things out as in how to carry out the required actions and methods. Some research questions have been identified as a mean of aid to accomplishing the research objective. They consist of:

- i. What are other contributing factors that could affect people to come to shopping complexes other than light?
- ii. Do commercial buildings with higher daylight components in its interior attract more customers?

The main intention of the research is to investigate the relationship between the usages of daylight in the interiors of commercial buildings on its capability to attract more customers. It is hoped that better understanding and application of daylight would contribute to more retail patronage.

## **1.5 Research assumptions**

- (a) The outdoor illuminance reading is constant from 11am to 2.30 pm (Zain, 2001). The selection of timeframe will be discussed in chapter 3.3.3.
- (b) The affects of daylight towards Malaysian is as equivalent as of those from temperate countries. This is to substantiate the use of journals and research done in temperate countries on affects of daylight towards human being behaviour.

## **1.6 Research organization.**

The thesis is organized in 6 chapters. Chapter 1 will discuss on the introduction of the research. Chapter 2 reviews the literature on the relation of the human being towards light, and the relation of light and commercial buildings. The review on the relation of the human being towards light is broken down to three categories which consist of the relation of light towards human behaviour, human psychology and human physiology. This is to illustrate and fortify the statement that light affects human being.

Chapter 3 discusses on the research methodology. The chapter discusses on how the study will be carried out. It explains the stages of the methodology which includes, building framework, data collection, pilot study and the analysis method. The building framework will discuss on shopping complex definition, factors affecting patronage and lighting and basic benchmarking. These studies are done as to substantiate the building selection.

Chapter 4 will discuss on the research analysis. Chapter 5 discusses on behavioural survey study. The final chapter which is Chapter 6 will discuss on the conclusion and recommendations for future research.

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